

論文の内容の要旨

論文題目 Essays on the behavioral effects of social security and taxation: Evidence from Japanese micro data

(税・社会保障制度が家計及び企業行動に与える影響 -日本の個票データに基づく分析-)

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Abstract (要旨)

Motivation and background

The way the social security and tax policies are managed has received broad attention in Japan. In this country, the sustainability of social security financing is heavily dependent on the operation of those policies. In fact, the government has recently carried out several reforms of social security systems, including pension, medical, and long-term care insurances, in order to maintain their financial sustainability. Furthermore, a number of discussions have taken place about the extent to which consumption tax can be utilized to finance social security. The revision of those systems would affect the corporate and household behaviors through a change of the relationship between the social insurance benefits and burdens. Nevertheless, its behavioral impacts have not been fully elucidated in empirical researches. Unfortunately, a mistaken notion instead prevails in the public. For instance, the *Nippon Keidanren* expressed in their “Outline of Proposal on Pension System Reform for 2004” that “the increased burden of the social insurance contributions reduces the vitality of corporations, impedes economic activities, and discourages the corporate efforts of employment maintenance.” In response, the 2004 pension reform law fixed the final rate of the insurance premium at 18.3 percentage point. However, in the economic theory, the increased employer’s contribution rate does not necessarily reduce corporate profits. A lack of empirical researches is one

of the possible reasons for this gap in understanding of the policy effect between economists and others.

Therefore, this thesis tries to empirically clarify, based on the framework of economics, the interaction of the social security and taxation policies with economic activities. More specifically, it examines, using micro-level data, how firms adjust wages and investments in response to policy changes, and also how household savings react to the institutional shifts. Those topics have been addressed by a number of researchers abroad; however, in Japan, only a few studies have tackled each of them yet. In addition, serious disagreement among scholars has remained unresolved in some fields. This thesis develops empirical analysis and disentangles several undecided issues.

Overview of the thesis

This thesis consists of two parts. Part I examines the behavioral effect of social security policies. This part addresses the following two topics: (1) the incidence of employer contributions to social security, and (2) the effect of pension reform on household asset accumulation. Part II examines the effect of tax policies. This part discusses the following two topics: (1) the reaction of corporate investment to the change in corporate tax rate, and (2) the effect of interest income tax on the household portfolio behavior.

I briefly summarize the abovementioned four topics of research, each of which constitutes one of the four chapters of this thesis. The first issue is the incidence of employer contributions to social security. This issue has remained controversial among empirical studies in Japan because opposite conclusions were obtained in two pioneering works: Tachibanaki and Yokoyama (2008) and Komamura and Yamada (2004). Whereas Tachibanaki and Yokoyama (2008) found “no apparent backward shifting on to employees,” Komamura and Yamada (2004) concluded that a “majority of the employer’s contribution rate to health insurance was shifting back onto the employees.” The first chapter reconciles this confusing situation by identifying a possible bias in the estimation results of their wage equation. First, this chapter reappraises Tachibanaki and Yokoyama’s (2008) findings by modifying their empirical strategy. To begin with, I control for a spurious positive correlation between the contribution rate and wages by trend variables. Second, I utilize a cross-sectional variation in the contribution rate of workers’ compensation, which was not considered in Tachibanaki and Yokoyama (2008). Third, I exclude the mining and real estate industries in order to remove unusual short-run fluctuations of wages. As a result of those three modifications, the coefficients of the contribution rate are estimated to be significantly negative, suggesting that some of the employers’ contribution is shifting back onto employees. Next, I consider the endogeneity problem of the contribution rate in Komamura and Yamada (2004). Our first evidence of this problem is a significant reverse causality from the monthly wage (dependent variable in the wage equation) to the employers’ contribution rate (one of the independent variables in the wage equation).

Further, I present more evidence of this relation by the regressions of the net wage or total labor cost on the contribution rates and the proportion of the employers' burden. The coefficients of those variables are internally inconsistent unless some endogeneity biases are assumed for the coefficients. Considering this outcome, my estimation result appears to be most consistent with the partial shifting hypothesis. Therefore, Komamura and Yamada's (2004) full shifting result would be overestimated by the endogeneity of wages. If each result of Tachibanaki and Yokoyama (2008) and Komamura and Yamada (2004) was biased in the manner suggested in this chapter, the most likely situation of Japan is the partial backward shifting. This result is also corroborated by previous studies of other countries.

In the second chapter, I analyze the effect of the 1999 pension reform on household asset accumulation in Japan. If the life-cycle hypothesis (LCH) holds true, the changes of pension wealth are offset by household assets. Aso and He (2001), which is one of the few Japanese studies examining this issue, found a significantly positive relationship between net pension benefits and household financial assets in a cross sectional setting. They then suggested that this result might be corroborated with the altruistic bequest motive hypothesis (ABMH). However, their result would reflect a spurious positive correlation between pension and private wealth, which is attributable to the positive relation between the benefits of employees' pension and before-retirement earnings. This chapter tries to avoid this problem by exploiting the exogenous reduction in pension benefits caused by the 1999 reform. This exogenous time-series variation allows me to identify the substitutability between those two assets separately from their inherent positive correlation in the cross section. In order to evaluate this substitution effect, I regress the household wealth on the net pension benefits, with other household characteristics being controlled. As a result of estimation, the substitutability is found mainly in the middle-aged households. This result implies that the saving behavior of those households is corroborated with LCH. In addition, I test whether the magnitude and significance of substitutability differ between altruistic and less altruistic households in a manner that is consistent with LCH. If LCH is more reasonable for less altruistic households as one would expect, it can be ascertained that the estimates of the offset capture the substantial effect of the pension reform. Consequently, this test indicates that the substitution effect is more significant for less altruistic households. Thus, the estimates of substitutability are probably identified by the variation of household assets caused by the 1999 pension reform. Moreover, this additional estimation suggests that the less altruistic households, for example, those with a weak motivation for leaving assets to their descendants and/or with no children, behave more consistently with LCH than other types of household.

The third chapter examines the investment responses to Japanese corporate tax reforms, based on the tax-adjusted form of Tobin's q model. Thus far, many works have faced difficulty in distinguishing the effect of tax on investment from that of other fundamental variables, because a

number of variables moved together over the business cycle in aggregated time-series data. To identify the tax effect, this chapter utilizes the cross-sectional variation of the change in tax-adjusted q driven by tax reforms, instead of q itself, in estimating investment functions. As a result, I obtain significantly positive coefficients of q particularly for the tax reforms in the 1980s, suggesting that the corporate tax cut significantly impacted the corporate investment decision. Moreover, for some industries (e.g., the rubber, etc. and wood, etc. industries), the coefficients also indicate the reaction of the investment to the tax cuts in the late 1990s, whereas the firms in other industries do not appear to have responded to them at all. Those results suggest that firms' investment reacted significantly to several Japanese tax reforms in the 1980s and 1990s, though the manner of investment responses somewhat differs among industries. Also, the estimated coefficients on tax-adjusted q are considerably larger than those obtained by conventional estimation methods. This is probably because the measurement error problem is reduced by using the change in tax-adjusted q driven by tax change, which is correctly observable, as an independent variable. These estimates are more valid as a parameter of the adjustment cost function in Tobin's q model as compared with those obtained previously.

Finally, this thesis treats the interest tax effect on the household portfolio behavior. Thus far, a number of empirical studies have also addressed this issue, but the identification of the tax effect has been a difficult problem. In the countries other than Japan, many previous studies tried to avoid a simultaneity problem of the marginal tax rate under aggregate income taxation. Specifically, the marginal tax rate is a function of household income in this system, and therefore, it is affected by portfolio choice itself. Some of the studies replaced the actual marginal tax rate with a hypothetical one to deal with this problem. Even after removing this simultaneity, however, marginal tax rates still appeared to suffer from another endogeneity problem of their direct dependence on taxable income; in other words, marginal tax rates are a non-decreasing function of taxable income. Therefore, in the usual situation that high-income households possess more wealth, the estimated tax effect would reflect a wealth or income effect. In fact, positive tax effects have been broadly reported in the previous foreign studies. In Japanese empirical works, the identification has also been a problem due to a data limitation and the spurious correlation between the tax rate and household wealth. Therefore, this chapter attempts to identify the tax effect on the asset choice and allocation using an exogenous tax variation derived from availability of the small-savings tax-exemption scheme ("Maruyu" system). This variation depends neither on the amounts of household wealth nor income. Contrary to the results of previous studies abroad, I found a significantly negative tax effect on the asset ownership of risky assets, such as bonds and mutual funds, in the probit estimation. Meanwhile, taxation hardly has any effect on the ownership probability of other safety assets, stocks, and life insurance. A likely explanation for this contrast may be a difference in level of the asset return. Since bonds and investment funds yielded higher return rate than safety assets did, the tax

exemption led to a larger tax saving for those assets. On the other hand, the asset demand equation, which is estimated by Heckman's two-step method, reveals that taxation did not have any significant effect on the asset allocation. This result appears to suggest that tax advantage was not an important determinant in choosing the portfolio composition.

References

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